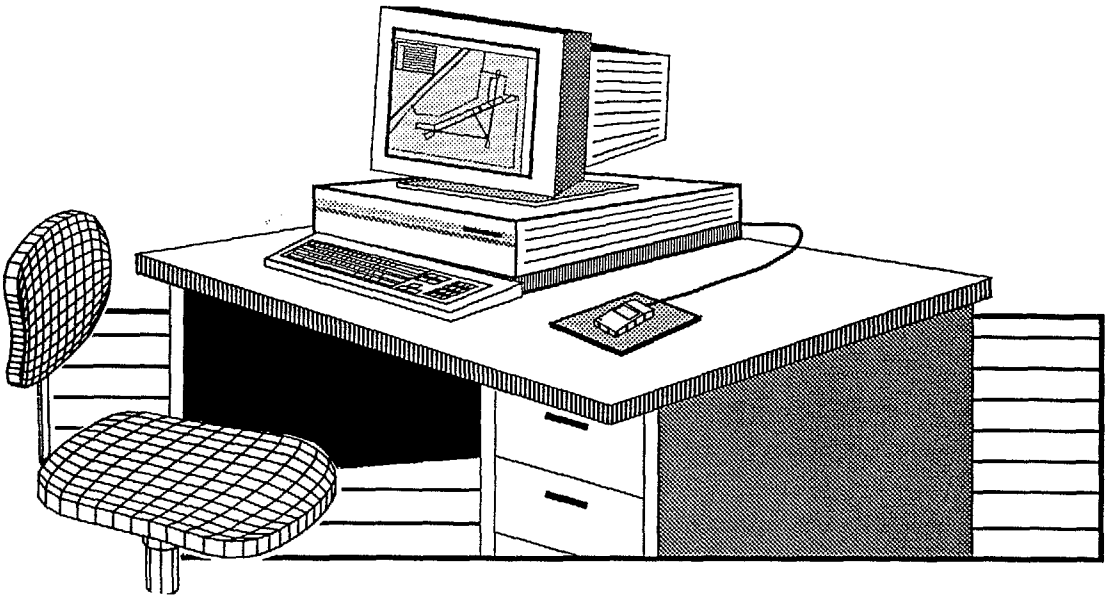
# CHAPTER FIVE
# AIRPORT PLANS



# Chapter Five
# AIRPORT PLANS

In Chapter Four, an evaluation was made of future options for airport development. This effort resulted in the selection of a recommended concept for future airport improvements. The purpose of this chapter is to describe in narrative and graphic form the recommended development through the 20-year planning period.

A set of plans, referred to as **Airport Layout Plans**, has been prepared to graphically depict the recommendations for airfield layouts, disposition of obstructions and future use of land in the vicinity of the airport. This set of plans includes the following:

- Airport Layout Plan
- Terminal Area Plan
- Part 77 Airspace Plan
- Approach Zones Plan
- Runway Protection Zones Plan
- Airport Land Use Plan

## AIRPORT DESIGN STANDARDS

Kingman Airport is identified as a commercial service short haul airport in the FAA National Plan of Integrated Airport Systems (NPIAS). The design standards for an airport of this type are included in FAA Advisory Circular 150/5300-13, **Airport Design.** These design standards are based upon the operational characteristics and the aircraft types that the airport is expected to serve on a regular basis. Most critical to airport design standards are the weight, wingspan and approach speed of the design aircraft. Recently, the FAA instituted an Airport Reference Code system based on an aircraft's approach category and the airplane design group (ADG).

The aircraft approach category is a grouping of aircraft by approach to landing speeds, calculated at 1.3 times the aircraft stall speed in the landing configuration at the aircraft's maximum certificated landing weight. The categories are as follows:

- **Category A:** Speeds less than 91 knots.
- **Category B:** Speeds 91 knots or more but less than 121 knots.
- **Category C:** Speeds 121 knots or more but less than 141 knots.
- **Category D:** Speeds 141 knots or more but less than 166 knots.
- **Category E:** Speeds 166 knots or more.

The airplane design group (ADG) is a grouping of airplanes based on wingspans. The ADG's are as follows.

- **ADG I:** Wingspans up to but not including 49 feet.
- **ADG II:** Wingspans 49 feet up to but not including 79 feet.
- **ADG III:** Wingspans 79 feet up to but not including 118 feet.
- **ADG IV:** Wingspans 118 feet up to but not including 171 feet.
- **ADG V:** Wingspans 171 feet up to but not including 214 feet.
- **ADG VI:** Wingspans 214 feet up to but not including 262 feet.

The critical aircraft at Kingman Airport is expected to be the Boeing 737. This type of aircraft can weigh up to 128,000 pounds and has a wingspan of 93 feet (ADG-III). The approach speed of this aircraft is 138 knots (Category C). Thus, the airport reference code for design at Kingman Airport is C-III.

The design standards used for planning facilities at Kingman Airport are summarized in **Table 5A**. Runway 3-21 is currently 6,831 feet in length and 150 feet wide, with an ultimate length of 7,800 feet and a pavement strength of 30,000 pounds single wheel loading (SWL), 150,000 pounds dual wheel loading (DWL).

Although the required runway width for a C-III runway is only 100 feet (and the existing runway width is 150 feet), a 150 foot wide runway is permitted if aircraft weights will exceed 150,000 pounds. Kingman Airport is in the process of storing commercial aircraft at the airport (Boeing 727/747, L-1011, DC-9, A-300, etc,), aircraft whose gross weights exceed 150,000 pounds in some cases. Further, the Boeing 737 is considered to be the critical aircraft that will operate at this airport in the future. One model of this aircraft, the Boeing 737-400, has a maximum gross weight of approximately 150,000 pounds. It is for these reasons that the runway should be retained at the 150 foot width throughout the planning period.

Please note that although additional runway length beyond 7,800 feet has not been forecast for Runway 3-21 during the master plan planning period, an ultimate length of 10,000 feet will be used to calculate the airspace requirements. This will be discussed in greater detail in the sections to follow.

The new FAA design standards allow more flexibility in establishing the airport's Building Restriction Line (BRL). The BRL established for Kingman Airport and illustrated on the ALP, will provide Part 77 clearance for an object 35 feet in height at the limits of the BRL. Should it become necessary to construct a building or locate an object closer to the runway centerline, the BRL can be relocated no further than the limits of the runway/taxiway obstacle free area, including any navaid critical areas and the runway protection zones.

It must be emphasized that three factors are important in the decision to establish or move the BRL. First, adequate clearance must be assured from all the Part 77 imaginary surfaces. Second, the future development plans of the airport must be considered when establishing the BRL. And finally, the type of building/facility being constructed or installed must enter into the decision. The cost of moving the building/facility may have an adverse economic impact on the airport and/or the owner of the facility.

# TABLE 5A
## Design Standards
## Kingman Airport

| | Runway 3-21 | | Runway 17-35 | |
|---|---|---|---|---|
| | Existing | Future | Existing | Future |
| Approach Category | | | | |
| Runway & Taxiways | C | C | B | B |
| Airplane Design Group (ADG) | | | | |
| Runways & Taxiways | III | III | II | II |
| Critical Aircraft | | | | |
| Runway & Taxiway | Metroliner | B-737 | N/A | N/A |
| **Description** | | | | |
| Runway Length | 6,831 | 7,800[3] | 6,724 | 6,724 |
| Runway Width | 150 | 150 | 75 | 75 |
| Parallel Taxiway Width | 75 | 75 | 75 | 75 |
| Taxiways A, B, X | 75 | 75 | N/A | N/A |
| Taxiways D1, D2, D3, C1 | 150 | 150 | 150 | 150 |
| Taxiways C2, C3 | N/A | N/A | N/A | 50 |
| Centerline Separations | | | | |
| Taxiway - FMO (Minimum) | 93 | 93 | N/A | 65.5 |
| Taxilane - FMO (minimum) | N/A | 81 | N/A | 57.5 |
| Runway - Parallel Taxiway | 522 | 522 | 538 | 538 |
| Runway - Aircraft Parking | 500 | 500 | N/A | 250 |
| Runway Obstacle Free Area | | | | |
| Length [1] | 1,000 | 1,000 | 600 | 600 |
| Width | 800 | 800 | 500 | 500 |
| Runway Safety Area | | | | |
| Length | 8,831 | 9,800 | 7,324 | 7,324 |
| Width | 500 | 500 | 150 | 150 |
| Runway Protection Zone | | | | |
| Runway 3/35 | | | | |
| Inner width | 500 | 1,000 | 500 | 500 |
| Length | 1,000 | 1,700 | 1,000 | 1,700 |
| Outer Width | 700 | 1,425 | 700 | 1010 |
| Runway 21/17 | | | | |
| Inner Width | 500 | 1,000 | 500 | 500 |
| Length | 1,700 | 2,500 | 1,000 | 1,700 |
| Outer Width | 1,010 | 1,750 | 700 | 1010 |
| Building Restriction Line [2] | 500 | 750 | 495 | 495 |
| Runway Hold Line | 250 | 250 | 200 | 200 |

Notes: Source: FAA AC 150/5300-12. All dimensions are in feet.
FMO = Fixed or Moveable Object. N/A = Not Applicable

(1) Beyond Runway end.

(2) The Building Restriction Line (BRL) will vary depending on runway and terrain elevation. This tables assumes the runway and terrain elevation are the same at points perpendicular to the runway, providing a minimum object clearance elevation of 35 feet at the BRL.

(3) A 10,000 foot runway length will be used in the Part 77 airspace plans for land use planning.

# AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) graphically presents the existing and ultimate airport layout and recommended improvements to meet forecast demand. The detailed airport and runway data are provided on the accompanying Airport Layout Plan, **Sheet No. 1,** to facilitate the interpretation of the master planning recommendations.

The ALP shows the primary improvements planned for the airfield, the terminal areas, and other landside facilities. The principle airfield recommendations result from the need to improve the airport's capability to accommodate larger aircraft. Similarly, the terminal and landside recommendations are planned to meet the existing and future market demands anticipated to impact landside facilities.

## AIRSIDE IMPROVEMENTS

Initial improvement in airport capability will begin in Stage I with the construction of a 969 foot extension to Runway 3, along with the extension of the parallel taxiway. Weather instrumentation and reporting will be improved with the installation of an Automated Surface Observation System (ASOS). Medium Intensity Taxiway Lighting (MITL) will be installed on all existing taxiways, including the extension to Taxiway D. Medium Intensity Runway lights will also be added to the Runway 3 extension. The parallel taxiway for Runway 17-35, Taxiway C, will be extended the full length of the runway. Also during this stage of development, land will be acquired to support the ILS installation and the increase in the required area for a Runway Protection Zone (RPZ).

In Stage II, the ILS will be installed and equipped with a Medium Intensity Alignment Light System with Runway Alignment Indicator Lights (MALSR), which will permit instrument operations at the airport when visibility is at least one half mile. Taxiways C1 and C2 will be constructed and lighted during this stage.

During Stage III, the increase in the number of B737 aircraft operating at the airport will require an overlay of Runway 3-21 and Taxiways D1, D2, D3, B and X to increase the wheel bearing strength. Distance Remaining Markers will be installed on Runway 17-35.

## LANDSIDE IMPROVEMENTS

The initial phase of landside development in Stage I will focus on the renovation of the terminal apron and the construction of a new commercial service terminal and parking. A new airport entrance road will be completed during this period as well as additional parking for general aviation. The Port-a-ports and shade hangar will be relocated and a new shade hangar installed. A wash rack for general aviation aircraft use will be constructed. The airport access road will be reconstructed and repaved in two separate projects.

In Stage II, additional Shade and T-hangars will be constructed as well as general aviation apron to support the increase demand for the hangars. An FBO hangar will be constructed and the existing fuel island closed. The underground storage tanks will be relocated to an above ground storage area.

In Stage III, the primary focus of airport development will be the expansion of the airline terminal and auto parking. General aviation needs will continue to be met with the addition of more T-hangars and shades as well as the associated automobile parking areas to serve these hangar areas. The strength of the airline terminal apron will be increased during this period. Pavement maintenance programs will be conducted at particular points in the planning period to insure the continued serviceability of the airfield pavements.

# TERMINAL AREA PLAN

The Terminal Area is depicted on **Sheet No. 2.** This plan provides a more detailed examination of airport development in the terminal area and

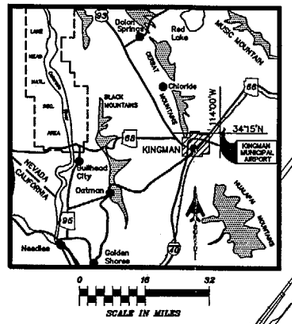
| RUNWAY DATA | RUNWAY 3-21 | | RUNWAY 17-35 | |
|---|---|---|---|---|
| | EXISTING | ULTIMATE | EXISTING | ULTIMATE |
| RUNWAY CATEGORY | TRANSPORT | TRANSPORT | GENERAL UTILITY | GENERAL UTILITY |
| AIRPORT REFERENCE CODE | III/C | III/C | II/B | II/B |
| RUNWAY DIMENSIONS | 6,831' X 150' | 7,800' X 150' | 6,724' X 75' | 6,724' X 75' |
| RUNWAY BEARING | S 45°00'18" E | SAME | N 00°01'56" E | SAME |
| RUNWAY INSTRUMENTATION | NP/VIS | PREC/NP | VIS/VIS | NP/NP |
| RUNWAY SAFETY AREA | 8,831' X 500' | 9,800' X 500' | 7,324' X 150' | 7,324' X 150' |
| RUNWAY OBSTACLE FREE AREA | 8,831' X 800' | 9,800' X 800' | 7,924' X 500' | 7,924' X 500 |
| RUNWAY OBSTACLE FREE ZONE | 7,231' X 400' | 8,200' X 400' | 7,124' X 250' | 7,124' X 250' |
| RUNWAY APPROACH SURFACES | 20:1/34:1 | 34:1/50:1.40:1 | 20:1/20:1 | 34:1/34:1 |
| RUNWAY LIGHTING | MIRL | HIRL | MIRL | SAME |
| RUNWAY MARKING | NP/NP | NP/PREC | VIS/VIS | NP/NP |
| EFFECTIVE RUNWAY GRADIENT (in %) | .23 | .27 | 1.31 | 1.31 |
| PAVEMENT MATERIAL | ASPHALT | ASPHALT | ASPHALT | ASPHALT |
| PAVEMENT STRENGTH (in thousand lbs.)[2] | 46S 86D 125DT | 150D | 22S 60D | SAME |
| TAXIWAY LIGHTING[1] | MITL[1] | MITL | NONE | MITL |
| TAXIWAY MARKING | CENTERLINE | CENTERLINE/EDGE | CENTERLINE | CENTERLINE/EDGE |
| NAVIGATIONAL AIDS | TVOR<br>VASI-2 | ILS-21<br>MALSR-21 | PAPI | |

[1] Parallel Taxiays D and A are only partially lighted. Several Taxiways (B,C and X) have no lighting.

[2] Pavement strengths are expressed in single (S), dual (D), dual tandem (DT), and/or double dual tandem (DDT), wheel loading capacities. Pavement strengths obtained from NOAA Airport/Facility Directory (11/14/91)

## BUILDINGS/FACILITIES

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| (1) | (1) | TERMINAL BUILDING |
| (2) | | AIR TRAFFIC CONTROL TOWER (ATCT)-ABANDONED |
| (3) | | AIRPORT RESCUE and FIREFIGHTING (ARFF) |
| (4) | (4) | FIXED BASE OPERATION HANGAR |
| (5) | | CONVENTIONAL HANGAR |
| (6) | (6) | SHADE/T-HANGAR |
| | (7) | CORPORATE HANGAR PARCEL |
| (8) | | ABOVEGROUND FUEL STORAGE FACILITY |
| (9) | | TERMINAL VHF OMNIRANGE (TVOR) |
| (10) | (10) | MOHAVE COUNTY AIRPORT AUTHORITY ADMINISTRATION |
| (11) | | ANEMOMETER |
| (12) | | SEGMENTED CIRCLE |
| (13) | | ROTATING BEACON |
| (14) | (14) | FIXED BASE OPERATOR (FBO) |
| (15) | | FUEL ISLAND/UNDERGROUND STORAGE TANKS |
| (16) | | BUILDING |
| | (17) | WASH RACK |
| | (18) | LARGE AIRCRAFT REPAIR FACILITY |
| | (19) | ASOS |
| (20) | (20) | POTENTIAL THROUGH-THE-FENCE TAXIWAY |




SUBMITTED BY: Coffman Associates ON THE DATE OF:

FOR APPROVAL BY:

KINGMAN AIRPORT

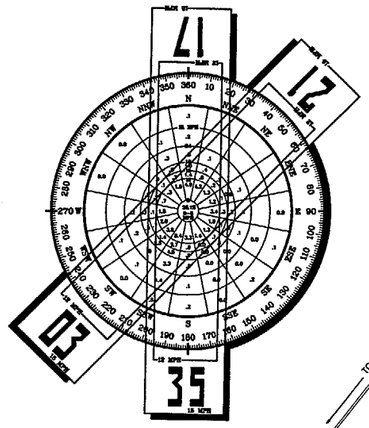
APPROVED BY: ON THE DATE OF:

First Vice President
Bruce A. Mitchell

| AIRPORT DATA | | EXISTING | ULTIMATE |
|---|---|---|---|
| AIRPORT CATEGORY | | TRANSPORT | TRANSPORT |
| AIRPORT REFERENCE CODE | | III/C | III/C |
| AIRPORT ELEVATION | | 3446' MSL | 3446' MSL |
| MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH | | 97.1° F | SAME |
| AIRPORT REFERENCE POINT (ARP) COORDINATES | Latitude | 35°15'33.04"N | 35°15'33.53"N |
| | Longitude | 113°55'57.31"W | 113°56'14.47"W |
| RUNWAY 3 (NOTE 4) | Latitude | 35°15'05.34"N | 35°14'58.21"N |
| | Longitude | 113°56'50.38"W | 113°56'58.90"W |
| RUNWAY 21 | Latitude | 35°15'53.10"N | SAME |
| | Longitude | 113°55'52.13"W | SAME |
| RUNWAY 17 | Latitude | 35°16'12.36"N | SAME |
| | Longitude | 113°56'06.94"W | SAME |
| RUNWAY 35 | Latitude | 35°15'05.86"N | SAME |
| | Longitude | 113°56'06.98"W | SAME |

## LEGEND

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| | | AIRPORT PROPERTY LINE |
| | | AIRPORT REFERENCE POINT (ARP) |
| | | AIRPORT ROTATING BEACON |
| | | AVIGATION EASEMENT (if applicable) |
| | BRL | BUILDING CONSTRUCTION |
| | BRL | BUILDING RESTRICTION LINE (BRL) |
| | | DRAINAGE |
| | | FACILITY CONSTRUCTION |
| | | FENCING |
| VASI-2 | | VISUAL APPROACH SLOPE INDICATOR |
| | | RUNWAY END IDENTIFICATION LIGHTS (REIL) |
| | | RUNWAY THRESHOLD LIGHTS |
| | | SECTION CORNER |
| | | SEGMENTED CIRCLE/WIND INDICATOR |
| | | TOPOGRAPHIC CONTOURS |
| | | WIND INDICATOR (Lighted) |
| | | UNDERGROUND VAULT |
| PAPI | | PRECISION APPROACH PATH INDICATOR |




SOURCE: NOAA National Climatic Center Asheville, N.C.
DATA STATION: Kingman Airport Kingman, Arizona
OBSERVATIONS: 9,575 Observations Jan. 1958 - Dec. 1969 (Note: Observations from 6:00 am to 8:00/12:00 pm)

| WIND COVERAGE | 12 MPH | 15 MPH |
|---|---|---|
| Runway 03-21 | 95.5% | 97.6% |
| Runway 17-35 | 89.3% | 95.1% |
| Runway 07-25 | Closed | Closed |
| All Runways | 98.6% | 99.3% |




GENERAL NOTES:

1. Depiction of features and objects, including related elevations within the runway protection zones are depicted on the RUNWAY PROTECTION ZONES PLANS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
4. Proposed long range Runway 3-21 length (10,000 ft) is not anticipated to be required during the period 1991-2010. The ultimate ARP is based on a 7,800 foot length for Runway 3-21. RUNWAY VISIBILITY ZONE is based on Runway 3-21 future 10,000 foot length.
5. Information on underground Vault obtained from Military Construction Drawing AIRFORCE FLEXIBLE GUNNERY SCHOOL, US Engineers Office L.A. California, July 1942, Mohave County Public Works Dept.
6. Pipeline Road to be relocated when ILS is installed.
7. Building Restriction Lines (BRL) are established to provide Part 77 clearance for a 35 foot high object at the BRL. The BRL may be reduced to the limits of the Runway Object Free Area and Runway Protection Zone.

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

KINGMAN AIRPORT

# AIRPORT LAYOUT PLAN

KINGMAN, ARIZONA

PLANNED BY: James M. Harris
DETAILED BY: Todd R. Vaughan
APPROVED BY: - - -

December 10, 1991 | SHEET 1 OF 7

Coffman Associates
Airport Consultants

## RUNWAY DATA

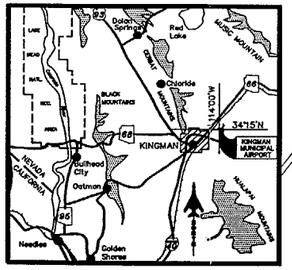
| | RUNWAY 3-21 | | RUNWAY 17-35 | |
|---|---|---|---|---|
| | EXISTING | ULTIMATE | EXISTING | ULTIMATE |
| RUNWAY CATEGORY | TRANSPORT | TRANSPORT | GENERAL UTILITY | GENERAL UTILITY |
| AIRPORT REFERENCE CODE | III/C | III/C | II/B | II/B |
| RUNWAY DIMENSIONS | 6,831' X 150' | 7,800' X 150' | 6,724' X 75' | 6,724' X 75' |
| RUNWAY BEARING | S 45°00'18" E | SAME | N 00°01'66" E | SAME |
| RUNWAY INSTRUMENTATION | NP/VIS | PREC/NP | VIS/VIS | NP/NP |
| RUNWAY SAFETY AREA | 8,831' X 500' | 9,800' X 500' | 7,324' X 150' | 7,324' X 150' |
| RUNWAY OBSTACLE FREE AREA | 8,831' X 800' | 9,800' X 800' | 7,924' X 500' | 7,924' X 500 |
| RUNWAY OBSTACLE FREE ZONE | 7,231' X 400' | 8,200' X 400' | 7,124' X 250' | 7,124' X 250' |
| RUNWAY APPROACH SURFACES | 20:1/34:1 | 34:1/50:1,40:1 | 20:1/20:1 | 34:1/34:1 |
| RUNWAY LIGHTING | MIRL | HIRL | MIRL | SAME |
| RUNWAY MARKING | NP/NP | NP/PREC | VIS/VIS | NP/NP |
| EFFECTIVE RUNWAY GRADIENT (in %) | .23 | .27 | 1.31 | 1.31 |
| PAVEMENT MATERIAL | ASPHALT | ASPHALT | ASPHALT | ASPHALT |
| PAVEMENT STRENGTH (in thousand lbs.)[2] | 30S 50D 80DT | 30S 150D | 30S 50D 80DT | SAME |
| TAXIWAY LIGHTING[1] | MITL | MITL | NONE | MITL |
| TAXIWAY MARKING | CENTERLINE | CENTERLINE/EDGE | CENTERLINE | CENTERLINE/EDGE |
| NAVIGATIONAL AIDS | TVOR<br>VASI-2 | ILS-21<br>MALSR-21 | PAPI | |

[1] Parallel Taxiays D and A are only partially lighted. Several Taxiways (B,C and X) have no lighting.

[2] Pavement strengths are expressed in single (S), dual (D), dual tandem (DT), and/or double dual tandem (DDT), wheel loading capacities. Pavement strengths obtained from FAA Pavement Strength Survey, Site 00716A, 6/25/87

## BUILDINGS/FACILITIES

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| 1 | 1 | TERMINAL BUILDING |
| 2 | | AIR TRAFFIC CONTROL TOWER (ATCT)-ABANDONED |
| 3 | | AIRPORT RESCUE and FIREFIGHTING (ARFF) |
| 4 | 4 | FIXED BASE OPERATION HANGAR |
| 5 | | CONVENTIONAL HANGAR |
| 6 | 6 | SHADE/T-HANGAR |
| | 7 | CORPORATE HANGAR PARCEL |
| 8 | | ABOVEGROUND FUEL STORAGE FACILITY |
| 9 | | TERMINAL VHF OMNIRANGE (TVOR) |
| 10 | 10 | MOHAVE COUNTY AIRPORT AUTHORITY ADMINISTRATION |
| 11 | | ANEMOMETER |
| 12 | | SEGMENTED CIRCLE |
| 13 | | ROTATING BEACON |
| 14 | 14 | FIXED BASE OPERATOR (FBO) |
| 15 | | FUEL ISLAND/UNDERGROUND STORAGE TANKS |
| 16 | | BUILDING |
| | 17 | WASH RACK |
| | 18 | LARGE AIRCRAFT REPAIR FACILITY |
| 19 | | ASOS |
| 20 | 20 | POTENTIAL THROUGH-THE-FENCE TAXIWAY |




SUBMITTED BY: Coffman Associates ON THE DATE OF:

FOR APPROVAL BY:

KINGMAN AIRPORT

APPROVED BY: ON THE DATE OF:

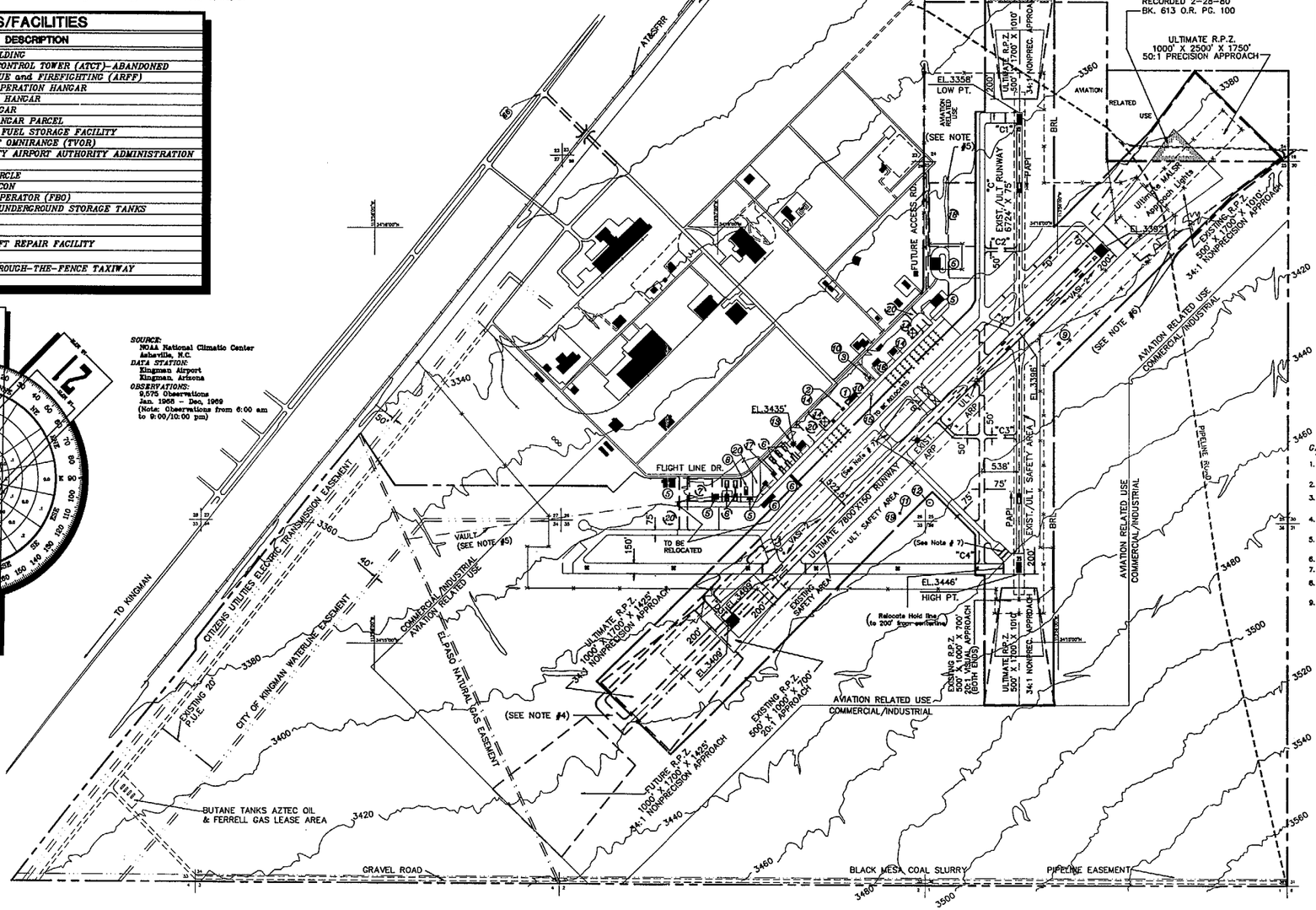
Authorized Official's Name
Official's Title

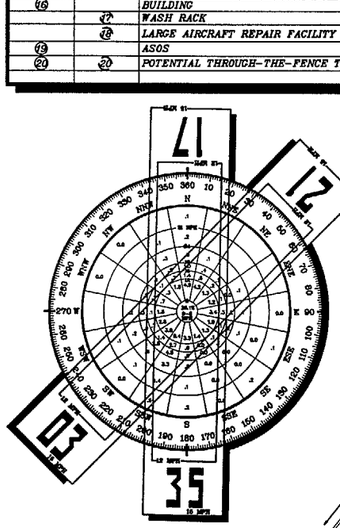
## AIRPORT DATA

| | | EXISTING | ULTIMATE |
|---|---|---|---|
| AIRPORT CATEGORY | | TRANSPORT | TRANSPORT |
| AIRPORT REFERENCE CODE | | III/C | III/C |
| AIRPORT ELEVATION | | 3446' MSL | 3446' MSL |
| MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH | | 97.1 F | SAME |
| AIRPORT REFERENCE POINT (ARP) COORDINATES | Latitude | 35°15'33.04"N | 35°15'33.59"N |
| | Longitude | 113°55'57.31"W | 113°56'14.47"W |
| RUNWAY 3 (NOTE 4) | Latitude | 35°15'05.34"N | 35°14'58.21"N |
| | Longitude | 113°56'50.36"W | 113°56'58.90"W |
| RUNWAY 21 | Latitude | 35°15'53.10"N | SAME |
| | Longitude | 113°55'52.13"W | SAME |
| RUNWAY 17 | Latitude | 35°16'12.36"N | SAME |
| | Longitude | 113°56'06.94"W | SAME |
| RUNWAY 35 | Latitude | 35°15'05.86"N | SAME |
| | Longitude | 113°56'06.98"W | SAME |

## LEGEND

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| | | AIRPORT PROPERTY LINE |
| | | AIRPORT REFERENCE POINT (ARP) |
| | | AIRPORT ROTATING BEACON |
| | | AVIATION EASEMENT (if applicable) |
| | | BUILDING CONSTRUCTION |
| | | BUILDING RESTRICTION LINE (BRL) |
| | | DRAINAGE |
| | | FACILITY CONSTRUCTION |
| | | FENCING |
| VASI-2 | | VISUAL APPROACH SLOPE INDICATOR |
| | | RUNWAY END IDENTIFICATION LIGHTS (REIL) |
| | | RUNWAY THRESHOLD LIGHTS |
| | | SECTION CORNER |
| | | SEGMENTED CIRCLE/WIND INDICATOR |
| 1060 | | TOPOGRAPHIC CONTOURS |
| | | WIND INDICATOR (Lighted) |
| | | UNDERGROUND VAULT |
| PAPI | | PRECISION APPROACH PATH INDICATOR |




SOURCE:
NOAA National Climatic Center
Asheville, N.C.
DATA STATION:
Kingman Airport
Kingman, Arizona
OBSERVATIONS:
9,575 Observations
Jan. 1965 - Dec. 1969
(Note: Observations from 6:00 am to 9:00/10:00 pm)

| WIND COVERAGE | | |
|---|---|---|
| | 12 MPH | 15 MPH |
| Runway 03-21 | 95.5% | 97.8% |
| Runway 17-35 | 89.3% | 95.1% |
| Runway 07-25 | Closed | Closed |
| All Runways | 98.6% | 99.3% |

MAGNETIC VARIANCE-15°16.7' E (1991)
RATE OF CHANGE - 2.9' ANNUALLY

SCALE IN FEET

GENERAL NOTES:

1. Depiction of features and objects, including related elevations within the runway protection zones are depicted on the RUNWAY PROTECTION ZONES PLANS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
4. Proposed long range Runway 3-21 length (10,000 ft) is not anticipated to be required during the period 1991-2010. The future ARP is based on a 7,800 foot length for Runway 3-21.
5. Information on underground Vault obtained from Military Construction Drawing AIRFORCE FLEXIBLE GUNNERY SCHOOL, US Engineers Office L.A. California, July 1942, Mohave County Public Works Dept.
6. Pipeline Road to be relocated when ILS is installed.
7. Runway Hold Lines to be relocated to 250' from Runway centerline.
8. Information on runway pavement strengths obtained from FAA Pavement Strength Survey, Site 00716.A, 6/25/87, and WE Form 5335-1.
9. Building Restriction Lines (BRL) are established to provide Part 77 clearance for a 35 foot high object at the BRL. The BRL may be reduced to the limits of the Runway Object Free Area and Runway Protection Zone.

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

KINGMAN AIRPORT

# AIRPORT LAYOUT PLAN

KINGMAN, ARIZONA

PLANNED BY: James M. Howie
DETAILED BY: Todd R. Vaughan
APPROVED BY: - - -

October 23, 1991 | SHEET 1 OF 7

Coffman Associates
Airport Consultants

## BUILDINGS/FACILITIES

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| (1) | (1) | TERMINAL BUILDING |
| (2) | | AIR TRAFFIC CONTROL TOWER (ATCT)- ABANDONED |
| (3) | | AIRPORT RESCUE and FIREFIGHTING (ARFF) |
| (4) | (4) | FIXED BASE OPERATION HANGAR |
| (5) | | CONVENTIONAL HANGAR |
| (6) | (6) | SHADE/T-HANGAR |
| | (7) | CORPORATE HANGAR PARCEL |
| (8) | | ABOVEGROUND FUEL STORAGE FACILITY |
| (9) | | TERMINAL VHF OMNIRANGE (TVOR) |
| (10) | (10) | MOHAVE COUNTY AIRPORT AUTHORITY ADMINISTRATION |
| (11) | | ANEMOMETER |
| (12) | | SEGMENTED CIRCLE |
| (13) | | ROTATING BEACON |
| (14) | (14) | FIXED BASE OPERATOR (FBO) |
| (15) | | FUEL ISLAND- UNDERGROUND FUEL STORAGE TANKS |
| (16) | | BUILDING |
| | (17) | WASH RACK |
| | (18) | LARGE AIRCRAFT REPAIR FACILITY |
| (19) | | ASOS |
| (20) | (20) | POTENTIAL THROUGH-THE-FENCE TAXIWAYS |

## DEVELOPMENT SCHEDULE

EXISTING / ULTIMATE BUILDINGS AND FACILITIES

STAGE I DEVELOPMENT (1991-1995)

STAGE II DEVELOPMENT (1996-2000)

STAGE III DEVELOPMENT (2001-2010)

FLIGHT LINE DR.

TO BE RELOCATED (STAGE I)

FUTURE ACCESS RD.

EL.3435'

FUEL ISLAND — RELOCATE FUEL TANKS

VAULT

EXIST./ULT RUNWAY 6/24' X 75'

"C"

"D"

EL.3409'

VASI-2

ULTIMATE 7800'X150' RUNWAY

EXIST. ARP

ULT. ARP

EL.3396'

EXIST. SAFETY AREA

ULT. SAFETY AREA

EXIST./ULT. SAFETY AREA

0 200 400 600

SCALE IN FEET

KINGMAN AIRPORT

# TERMINAL AREA PLAN

KINGMAN, ARIZONA

| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE F.A.A. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

PLANNED BY: James M. Harris

DETAILED BY: Jack R. Cooper

APPROVED BY: - - -

October 17,1991

SHEET 2 OF 7

Coffman Associates
Airport Consultants

defines the scheduled staging of development projects.

## AIRSPACE PLANS

Several drawings in the plan set provide varying levels of detail on the airspace associated with ultimate development at Kingman Airport. These include the F.A.R. Part 77 Airspace Plan, Approach Zones Plan, and Protection Zones Plan.

### PART 77 AIRSPACE PLAN

The Airspace Plan for Kingman Airport is based on Federal Aviation Regulations (F.A.R.) Part 77, Objects Affecting Navigable Airspace. In order to protect the airspace and approaches to each end of the runway from hazards that could affect the safe and efficient operation of the airport, federal criteria has been established (F.A.R. Part 77). These criteria were developed for use by local planning and land use jurisdictions to control the height of objects in the vicinity of the airports.

In order to preclude the possibility of future encroachment on the Part 77 imaginary surfaces, the airspace plan was designed for the future extension of Runway 3-21 to a length of 10,000 feet. Although this runway length is not expected to be warranted during the master plan period, at some time this runway length might be constructed. In order to provide the Authority, City and the County with a land management tool related to this runway length, the airspace plan was designed with Runway 3-21 at the full length of 10,000 feet.

The Part 77 Airspace Plan presented on Sheet No. 3 is a graphic depiction of these criteria. This drawing, when used as an overlay to and in conjunction with an Airport Height and Hazard Zoning Ordinance, will permit surrounding jurisdictions to readily determine if construction of a proposed structure in the vicinity of the airport will penetrate any of the proposed airspace surfaces.

The Part 77 Plan also lists existing obstructions, their impact on future airport development and plans for their recommended disposition, if necessary. Design criteria for surface heights, angles and radii on this plan are determined by airport category and runway approach instrumentation. The Airspace Plan for Kingman Airport is based on large aircraft with precision instrument landing capability on Runway 21, and ultimately, nonprecision approaches to Runways 3, 17 and 35.

Existing obstructions at the airport are both on and off airport property and penetrate the primary, transition, horizontal and conical surfaces. Most are bushes and terrain, while other obstructions are associated with airfield operations and are fixed by their functional purpose. These latter facilities all have obstruction lighting and were approved by the Federal Aviation Administration prior to construction. A description and recommended disposition for each of the obstructions can be found on Sheet No. 3. Any obstructions found in the approach or runway protection zones will be illustrated in more detail on Sheets No. 4, 5 and 6.

### APPROACH ZONES PLAN

The Approach Zones Plan is a profile representation of the approach surfaces off each end of the runway. The plan depicts the physical features in the vicinity of each runway's extended centerline, including significant topographic changes, roadways and power lines. The dimensions and angles of the approach surfaces are also a function of the airport category and runway instrumentation.

The ultimate approach criteria at Kingman Airport is based upon a precision approach to Runway 21 and nonprecision approaches to Runways 3, 17 and 35. A precision approach system dictates an approach slope of 50 to 1 for the inner 10,000 feet and 40 to 1 for an additional 40,000 feet. The criteria for a nonprecision approach is less stringent, requiring an approach slope of 34 to 1 for 10,000 feet, on

Runway 3 as well as on Runways 17 and 35. Sheet No. 4 depicts the current and future approach zone profiles for Runways 3-21 and 17-35. Fences currently penetrate the Runway 3 and 21 approach surfaces that will be removed during 1994 and 1993, respectively. A private pipeline service road crosses the centerline approximately 800 feet northeast of the end of Runway 21. This road is not presently an obstruction to the approach surface, however, once the precision instrument approach is established to Runway 21, the road will become an obstruction and will have to be relocated. There are no other obstructions to any of the other approach surfaces.

### RUNWAY PROTECTION ZONES PLAN

The Runway Protection Zones (RPZ) Plan consists of two large scale plans with profile views of the inner portions of the approach surfaces. These plans are designed to facilitate identification of the roadways, rail lines, utility lines, structures and other possible obstructions that may exist within the confines of these critical operations areas at the ends of each runway.

Sheet No. 5 depicts the runway protection zones for the existing and future conditions for Runway 3-21. The RPZ for the existing Runway 21 approach is based upon a nonprecision instrument approach criteria and measures 500 feet by 1,700 feet by 1,010 feet. The RPZ for the future approach to Runway 21 is a precision approach, 1,000 feet by 2,500 feet by 1,750 feet.

The existing approach to Runway 3 is a visual approach with an RPZ measuring 500 feet by 1,000 feet by 700 feet. The future RPZ has a larger size dictated by the nonprecision approach anticipated for the runway and measures, 1,000 feet by 1,700 feet by 1,425 feet. The ground elevation penetrates the imaginary surface within the RPZ for Runway 3, as indicated on Sheet No. 5.

Sheet No. 6 depicts the existing approaches to Runway 17 and 35 as visual with an RPZ measuring 500 feet by 1,000 feet by 700 feet. The future RPZ would be larger in size, dictated by the nonprecision approach anticipated for the runway and would measure, 500 feet by 1,700 feet by 1010 feet. The ground elevation penetrates the imaginary surface in the RPZ for Runway 35 as indicated on Sheet No. 6.

## AIRPORT LAND USE PLAN

The purpose of the Airport Land Use Plan is to establish uses of the airport property in a manner compatible with its distinct operational activities. The plan depicts recommendations for both on and off-airport land use.

### ON-AIRPORT LAND USE PLAN

On-airport land use planning is important to the orderly development and efficient use of available space. The on-airport land use plan is designed to provide the basic guidance for airport management to make decisions related to future development of Kingman Airport. The plan provides for development of both the short range and long range development needs. Flexibility has been designed into the plan to allow for development beyond the standard twenty year master plan forecast. This will provide flexibility in the development of strategies for marketing the airport.

The Airport Land Use Plan is depicted on Sheet No. 7. Two land use categories have been identified: airfield operations and aviation-related areas and potential commercial/industrial development areas.

#### Airfield Operations and Aviation Related

Airfield operation is the most critical category of land use because it relates to those land uses and facilities necessary for safe operation of aircraft on the airport. At Kingman Airport this includes the existing and proposed runway, associated parallel taxiways and taxiway exits, and areas within the building restriction lines and the RPZ's. Also included are runway and taxiway safety areas, runway approaches (where clearance

## OBSTRUCTION TABLE

| Description | Elevation (MSL) | Obstruction | Disposition |
|---|---|---|---|
| 1. FENCE POST | UP TO 3401' | 5' OBSTRUCTION TO THE APPROACH SURFACE | REMOVE |
| 2. FENCE POST | UP TO 3402' | 10' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 3. FENCE POST | UP TO 3401' | 6' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 4. FENCE POST | UP TO 3405' | 5' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 5. GROUND | UP TO 3449' | 3' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 6. FENCE | UP TO 3460' | 1' OBSTRUCTION TO THE TRANSITION SURFACE | REMOVE |
| 7. GROUND | UP TO 3450' | 4' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 8. GROUND | UP TO 3450' | 4' OBSTRUCTION TO THE PRIMARY SURFACE | REMOVE |
| 9. GROUND | UP TO 3413' | 4' OBSTRUCTION TO THE PRIMARY SURFACE | TO BE REMOVED DURING RUNWAY EXTENSION |
| 10. GROUND | UP TO 3414' | 5' OBSTRUCTION TO THE PRIMARY SURFACE | TO BE REMOVED DURING RUNWAY EXTENSION |
| 11. FENCE | UP TO 3420' | 7' OBSTRUCTION TO THE APPROACH SURFACE | REMOVE |
| 12. BUSH | UP TO 3604' | 8' OBSTRUCTION TO THE HORIZONTAL SURFACE | REMOVE |
| 13. BUSH | UP TO 3622' | 26' OBSTRUCTION TO THE HORIZONTAL SURFACE | REMOVE |
| 14. POLE | UP TO 3619' | 23' OBSTRUCTION TO THE HORIZONTAL SURFACE | TO BE LIGHTED |
| 15. POLE | UP TO 3658' | 62' OBSTRUCTION TO THE HORIZONTAL SURFACE | TO BE LIGHTED |
| 16. BUSH | UP TO 3618' | 22' OBSTRUCTION TO THE HORIZONTAL SURFACE | REMOVE |
| 17. ROAD | UP TO 3404' | 6' OBSTRUCTION TO THE APPROACH SURFACE | RELOCATE ROAD |
| 18. POLE | UP TO 3678' | 28' OBSTRUCTION TO THE HORIZONTAL SURFACE | TO BE LIGHTED |
| 19. POLE | UP TO 3678' | 28' OBSTRUCTION TO THE HORIZONTAL SURFACE | TO BE LIGHTED |
| 20. POLE | UP TO 3678' | 66' OBSTRUCTION TO THE CONICAL SURFACE | TO BE LIGHTED |
| 21. POLE | UP TO 3683' | 33' OBSTRUCTION TO THE CONICAL SURFACE | TO BE LIGHTED |
| 22. POLE | UP TO 3693' | 9' OBSTRUCTION TO THE CONICAL SURFACE | TO BE LIGHTED |
| 23. GROUND | UP TO 3800' | 4' OBSTRUCTION TO THE CONICAL SURFACE | INDICATE ON AERONAUTICAL CHART |

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

AIRPORT ELEVATION 3446'
HORIZONTAL SURFACE 3596'
CONICAL SURFACE 20:1
10,000' @ 50:1
40,000' @ 40:1
EL. 3358'
EL. 3392'
EL. 3446'
EL. 3420'
7:1
34:1

NORTH

0 3000 6000 9000
SCALE IN FEET

### OBSTRUCTION LEGEND

OBSTRUCTION

TERRAIN PENETRATES THE HORIZONTAL AND CONICAL SURFACES. INDICATE THIS OBSTRUCTION ON AERONAUTICAL PUBLICATIONS CONCERNING THE AIRPORT

*GENERAL NOTES:*

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the PART 77 AIRSPACE PLAN, sheet 3 of 7, of these plans.
3. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 4 of 7, of these plans.
4. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheets 5 and 6 of 7, of these plans.

| No. | REVISIONS | DATE | BY | APP'D. |
|---|---|---|---|---|

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

KINGMAN AIRPORT

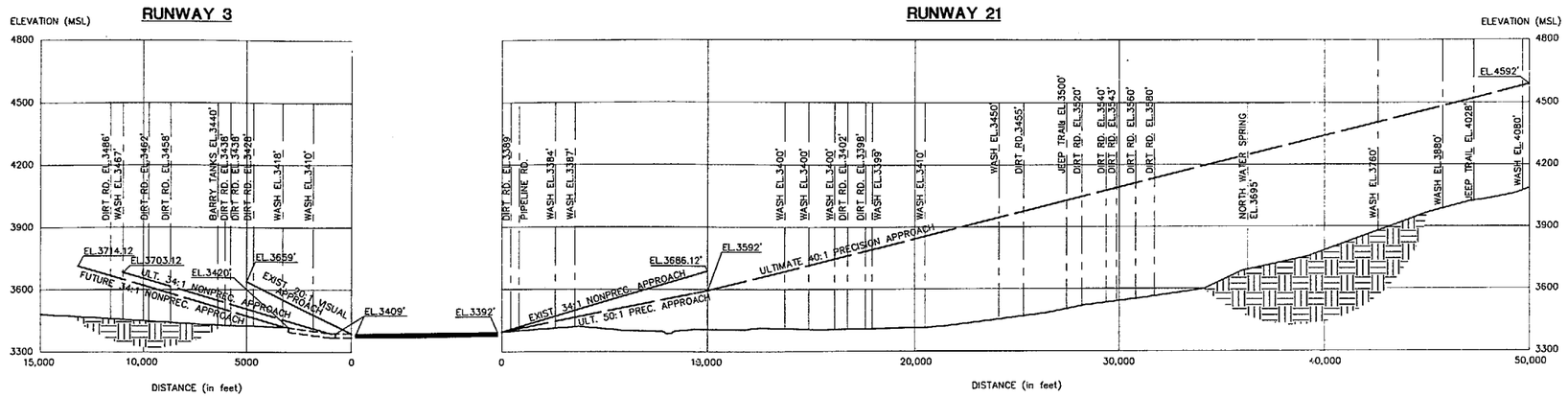
# PART 77 AIRSPACE PLAN

KINGMAN, ARIZONA

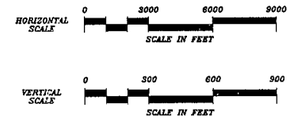
PLANNED BY: Joanne M. Harris
DETAILED BY: Scott R. Koeppen
APPROVED BY: - - -
May 24, 1991

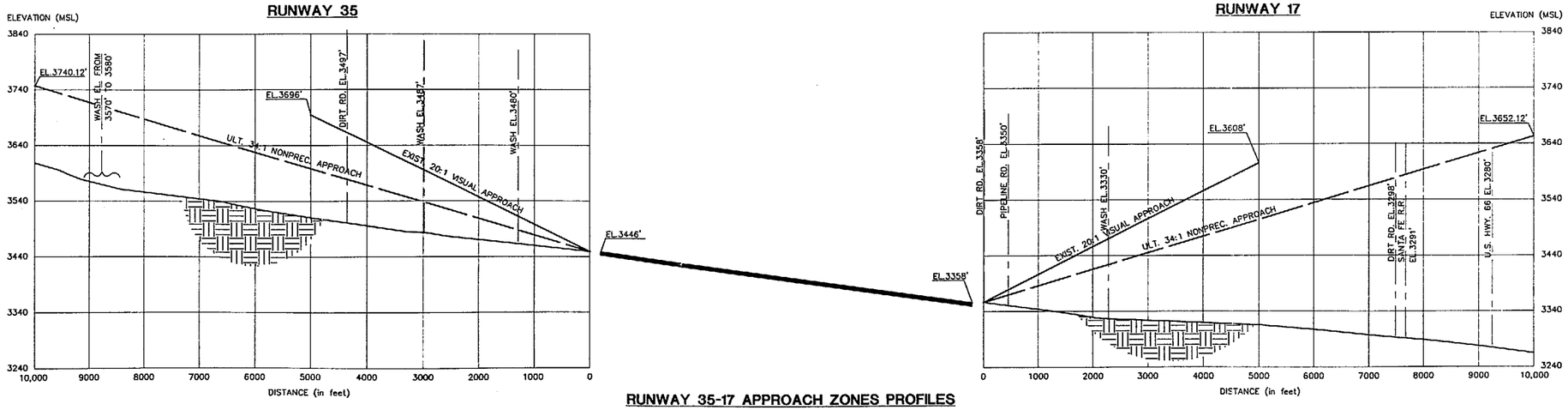
SHEET 3 OF 7

Coffman Associates
Airport Consultants

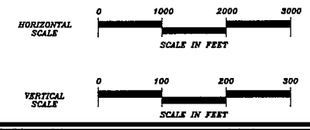



## RUNWAY 3-21 APPROACH ZONES PROFILES




## RUNWAY 35-17 APPROACH ZONES PROFILES




| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

KINGMAN AIRPORT

# APPROACH ZONES PLAN

KINGMAN, ARIZONA

PLANNED BY: James M. Harris

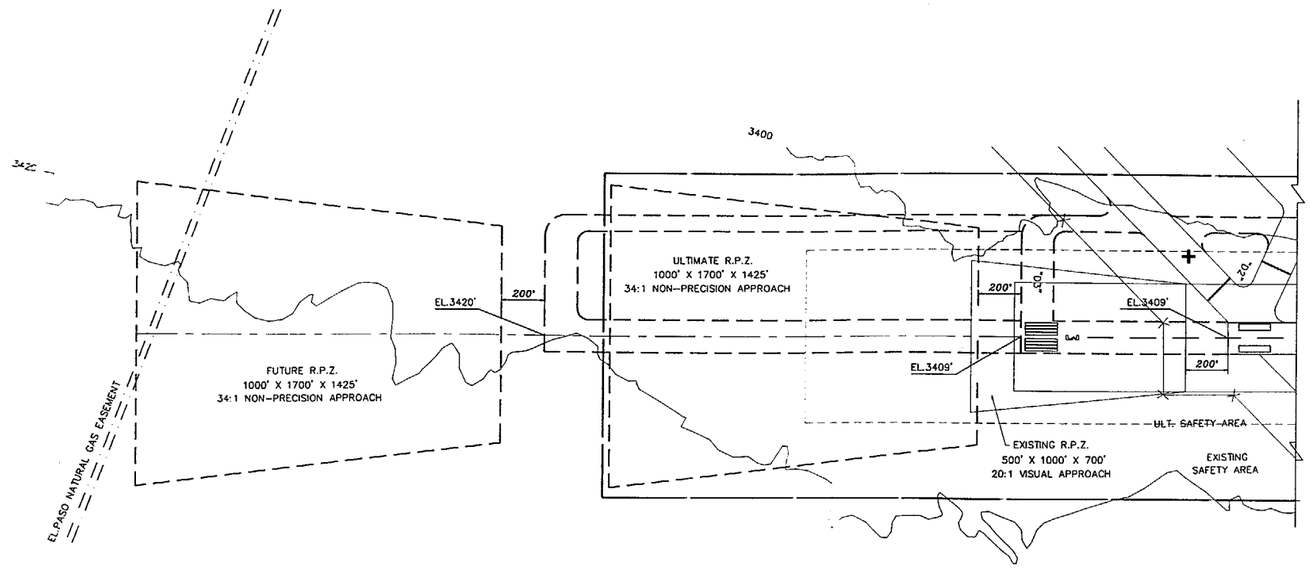
DETAILED BY: Jack R. Vaughan

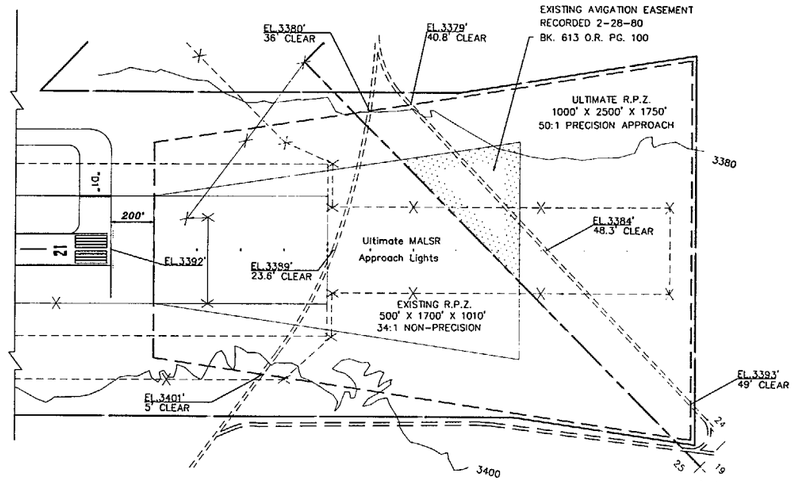
APPROVED BY: - - -

May 21, 1991

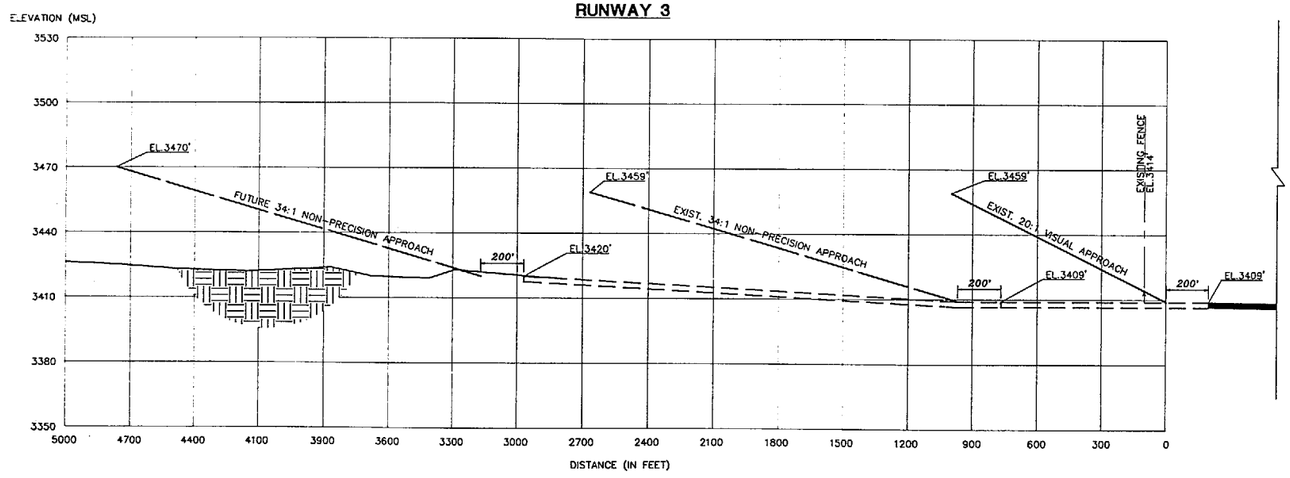


Coffman Associates
Airport Consultants

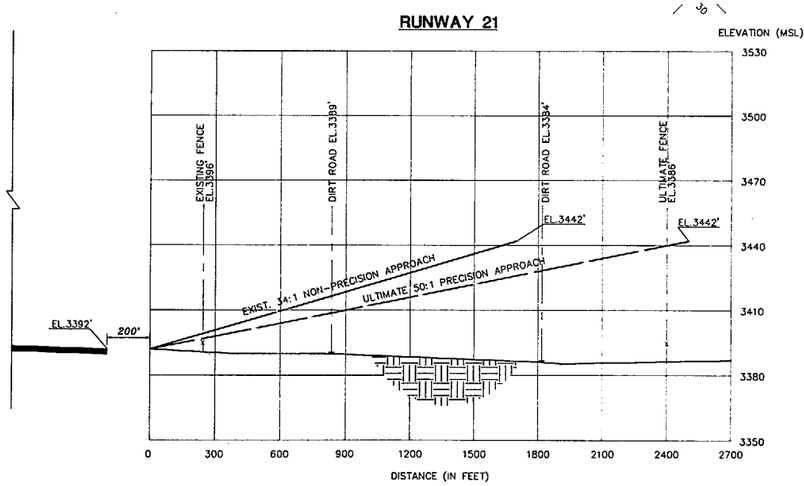



## RUNWAY 3




## RUNWAY 21




## RUNWAY 3 - 21 PROTECTION ZONES PLANS & PROFILES

HORIZONTAL SCALE 0 300 600 900 SCALE IN FEET

VERTICAL SCALE 0 30 60 90 SCALE IN FEET

*GENERAL NOTES:*

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the PART 77 AIRSPACE PLAN, sheet 3 of 7, of these plans.
3. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 4 of 7, of these plans.
4. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLANS, sheets 5 and 6, of these plans.

| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

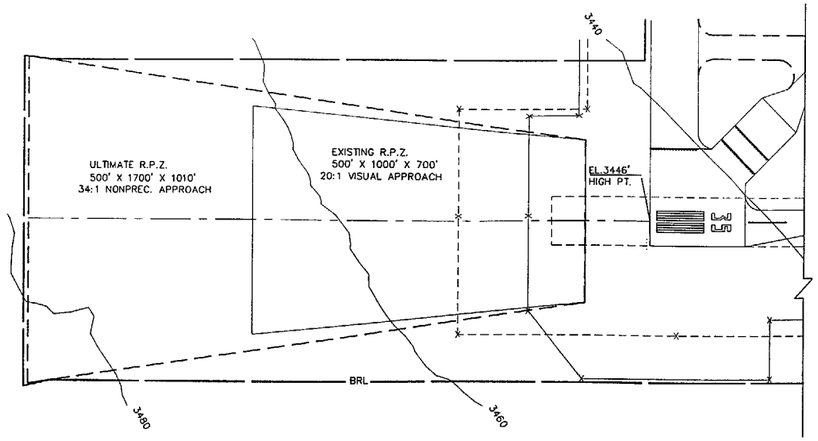
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

KINGMAN AIRPORT
# RUNWAY PROTECTION ZONES PLAN
RUNWAY 3-21
KINGMAN, ARIZONA

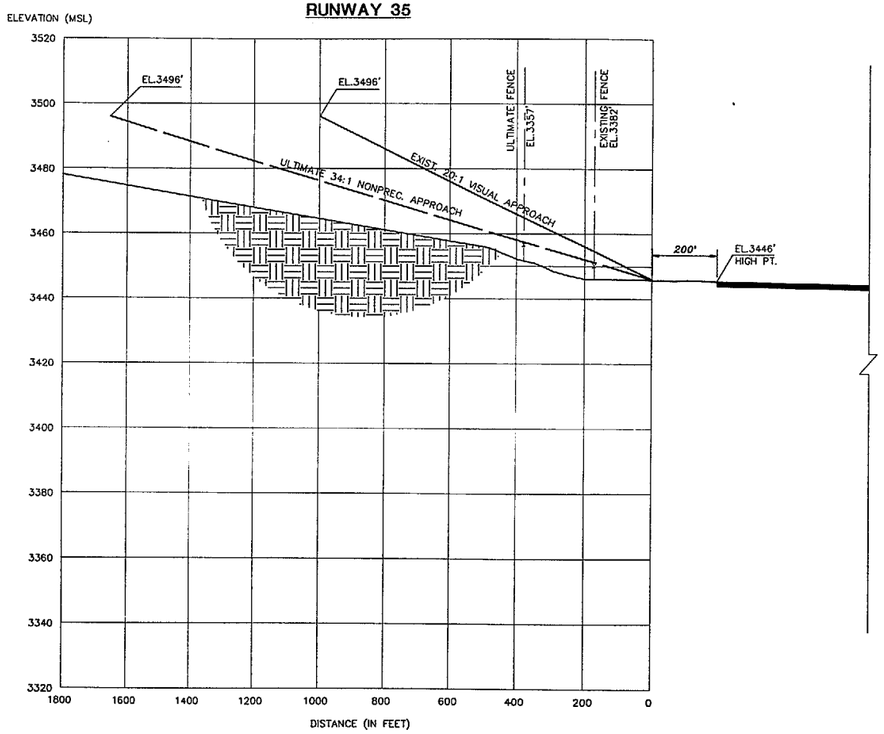
PLANNED BY: James M. Harris
DETAILED BY: Scott R. Vaughan
APPROVED BY: — — —
May 8, 1991

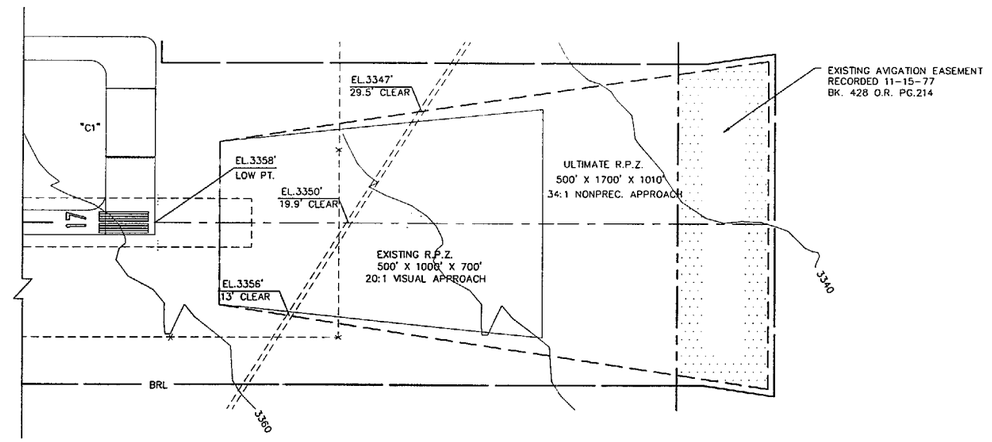


Coffman Associates
Airport Consultants

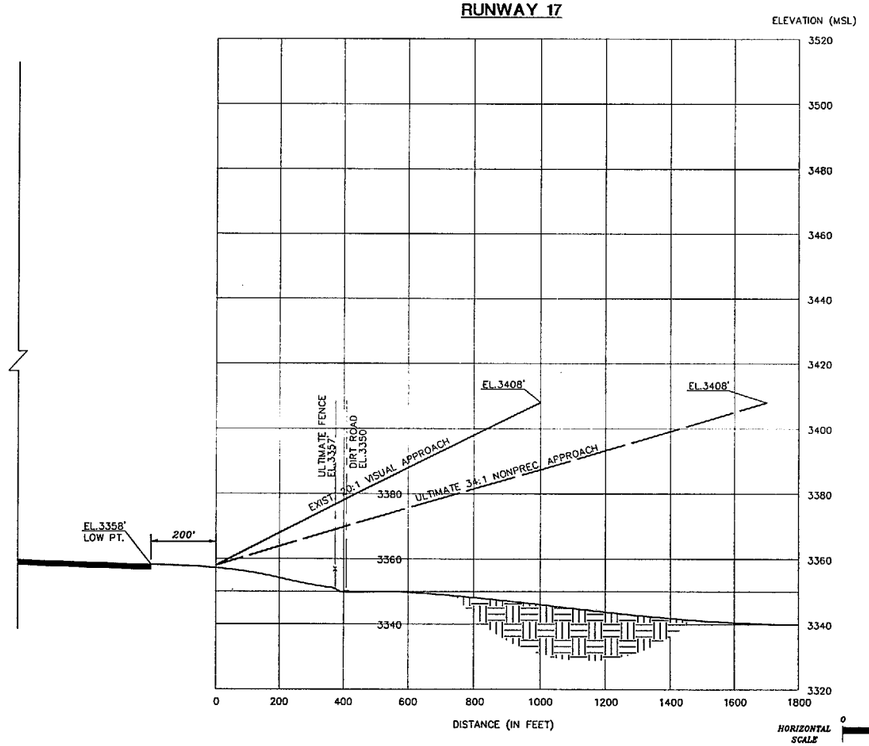



## RUNWAY 35




## RUNWAY 17




HORIZONTAL SCALE 0 200 400 600 SCALE IN FEET

VERTICAL SCALE 0 20 40 60 SCALE IN FEET

# RUNWAY 35-17 PROTECTION ZONES PLANS & PROFILES

*GENERAL NOTES:*

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the PART 77 AIRSPACE PLAN, sheet 3 of 7, of these plans.
3. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 4 of 7, of these plans.
4. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLANS, sheets 5 and 6, of these plans.

| No. | REVISIONS | DATE | BY | APP'D |
|---|---|---|---|---|

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

KINGMAN AIRPORT
# RUNWAY PROTECTIONS ZONES PLAN
RUNWAY 35-17
KINGMAN, ARIZONA

PLANNED BY: James M. Harris
DETAILED BY: Scott R. Vaughan
APPROVED BY: - - -

May 13, 1991 | SHEET 6 OF 7

Coffman Associates
Airport Consultants

is not adequate to permit other uses), and areas where navaids will be located.

Aviation related land uses include the passenger terminal (which includes all facilities associated with the passenger terminal area), automobile parking, fixed base operators (FBO's), and support facilities. Support facilities include air traffic control, airport rescue and firefighting facilities, airport maintenance and airport utilities. Also included are facilities such as rental car service, and fuel storage.

### Commercial/Industrial Development

Land uses that do not fall within the two previous categories but may provide commercial/industrial development potential are also illustrated on this plan. These areas, which are excess to anticipated future aviation needs may require a deed of release from the FAA before development.

## OFF-AIRPORT LAND USE PLAN

The purpose of the land use compatibility plan is to describe a pattern of land uses around the airport that will be compatible with activities on the site. The importance of the airport to local and regional economic growth indicates the need for area governmental jurisdictions to protect this significant investment. The two primary concerns related to off-airport land use are maintaining land use compatibility and the prevention of obstructions within the imaginary surfaces of the airport to promote safety and efficiency of operations.

### Operational Protection

Development within the existing and future RPZ's for Runway 3, 17 and 35 can be controlled by the airport, since all of the RPZ's are contained within airport property. However, a portion of the future RPZ for Runway 21 is located outside of the property line and the existing avigation easement and is not under the control of the airport. As previously noted, the installation of an ILS will result in a larger RPZ and approximately 28 acres of property will have to be acquired in order for the airport sponsor to obtain control of the RPZ.

Large land areas within the Part 77 Airspace (as defined on **Sheet No. 3**) can be affected by development off airport and the height of objects within these areas must be controlled. Zoning is generally the most reasonable and effective means of protecting the airport airspace from penetrations by objects. The Part 77 Airspace Plan, illustrated on **Sheet No. 3**, can be used as a guideline for City and County zoning.

### Noise Compatibility

The off-airport land use recommendations depicted on **Sheet No. 7** are based upon the impacts anticipated to occur in the airport environs as a result of growth in airport operations throughout the planning period. One of the methods of measuring these impacts is the calculation of the airport's noise contours. The noise contours are generated from an FAA approved noise methodology referred to as the **Day-Night Average Sound Level (Ldn)**. Ldn is defined as the average A-weighted sound level during a 24-hour period. The noise contours depicted in this analysis were based on the Integrated Noise Model (INM), Version 3.9. The model computes noise exposure levels for regular grid points around the airport. Stored within the INM's data base are tables relating to noise, slant range and engine thrust settings for each distinct aircraft type.

- **Noise Impacts**

The basic elements and concepts of Ldn combine noise frequency, time of day and energy averaging of aircraft types and numbers to produce a contour line that indicates an average noise level (Ldn) at a certain distance from the airport. A penalty has been imposed on operations conducted at the airport during the night hours (defined as 10:00 p.m. to 7:00 a.m.). Aircraft operations conducted during this time period receive a 10 decibel penalty (increase).

The model also considers the types of tracks and profiles that aircraft follow when arriving or departing Kingman Airport. This data produces a series of lines called noise contours, which, when plotted on a surface map, indicate the average day-night level of noise predicted for the number and type of aircraft operations conducted at the airport.

The forecast aircraft types and operations for the year 2010 were used to produce the noise contours depicted on the Land Use Plan. It should be emphasized that Ldn noise contours are presented for annual average conditions. Consequently, the contours will tend to understate noise exposure levels during peak periods and overstate the condition during slow activity periods.

Ldn contours can be used to highlight an existing or potential aircraft noise problem, assess relative exposure levels of various noise abatement alternatives, assist in the preparation of airport environs land use plans and provide guidance in the development of land use control devices. They are not, however, absolutes which reflect every conceivable operating condition. They represent typical conditions for planning purposes.

Aircraft noise affects people and impacts land uses in different ways. Various government and private agency studies (particularly those studies conducted by Environmental Protection Agency and FAA) have defined the general sensitivity of various land uses to noise levels. The land use compatibility guidelines contained in Federal Aviation Regulation (FAR) Part 150 were used to recommend the land uses depicted on the plan. In general, residential land uses are not considered "*compatible*" with noise contour levels above 65 Ldn. **Exhibit 5A** provides a graphic illustration of the FAA Part 150 airport compatibility guidelines.

Based on FAA guidelines and the noise contours for the existing level of operations at the airport and that projected for the year 2010, a review was made of the potential incompatible land uses at Kingman Airport. For the existing and future condition, no incompatible land uses were identified since the 65 Ldn noise contour was contained totally within the airport property.

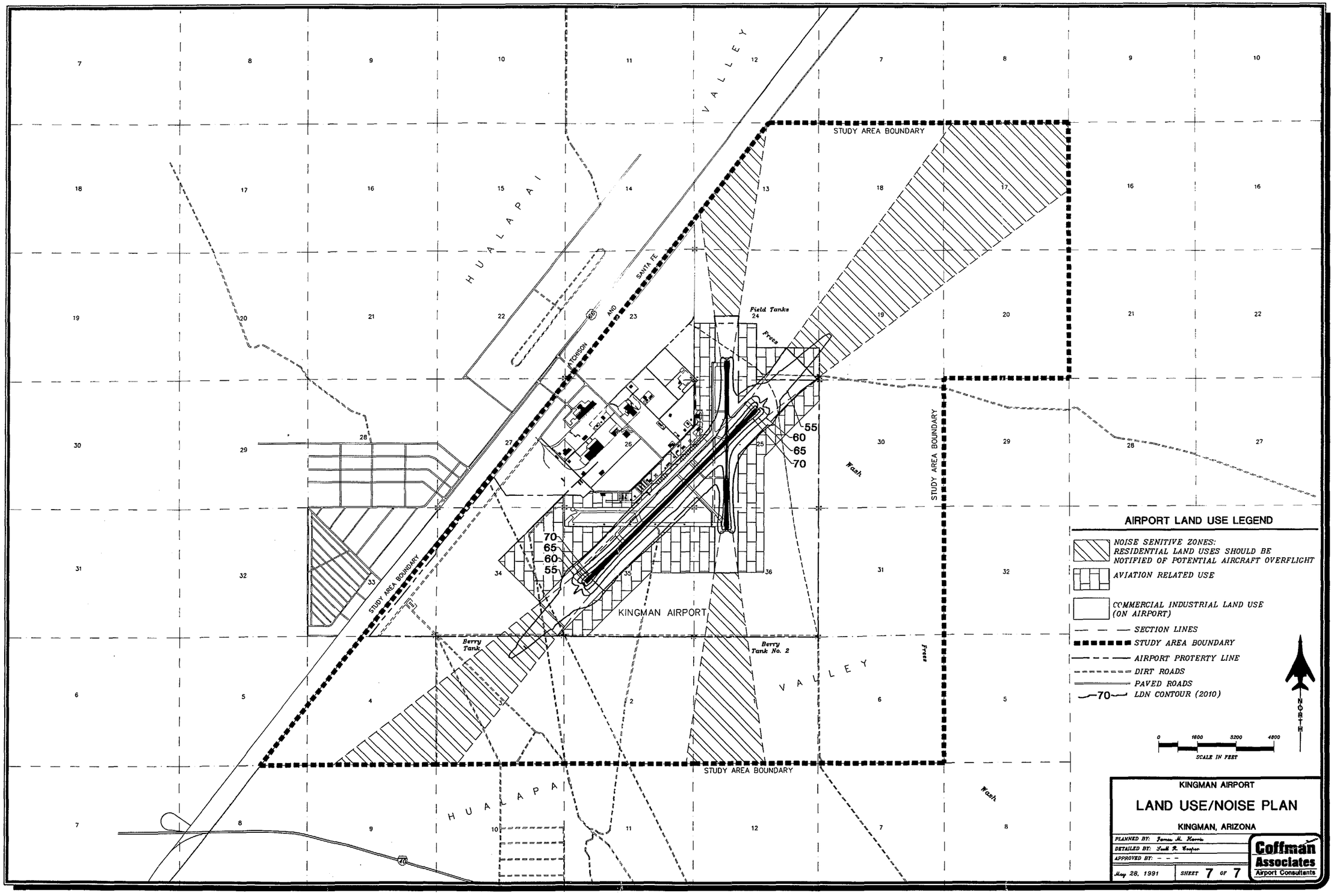
- **Other Impacts**

The remaining off-airport areas affected by airport operations are overflight of potential residential land uses by aircraft operating at the airport. The primary areas that are affected are along the centerlines of the runway out to approximately 3 miles from the runway end.

During the preparation of the master plan, recommendations by the Planning Advisory Committee suggested that the 55 Ldn noise contour be used as a residential land use guideline for the City and County. The City is in the process of establishing an Airport Sub-Element within their land use planning document. Within this sub-element, it is recommended that the City designate the 55 Ldn Noise contour and all unencumbered property along the Runway 3-21 centerline out to a distance of 3-4 miles as an Aircraft Overflight Zone.

As a policy, it is recommended that City and County agencies controlling land use and zoning discourage residential land uses in the approach paths to the airports runways. By establishing and supporting an Aircraft Overflight Zone, these agencies will, as a minimum, be informing the public and developers that aircraft activity exists in the area they propose for residential use. In order to insure a potential homeowner is aware of the noise sensitive zone, avigation easements may be incorporated into zoning requirements for the area. In any case, it is essential that the future of the airport should be protected as much as possible.

To date, most of the adverse public reaction to airport operations at Kingman Airport has been related to overflight by aircraft landing and/or taking off from the airport. By incorporating the present land use guidelines into the City's planning document the public is provided a greater degree of protection from aircraft overflight. This will help to ensure that the present and future development within the airport environs will be made compatible with airport operations and activity.




# KINGMAN AIRPORT

## LAND USE/NOISE PLAN

KINGMAN, ARIZONA

PLANNED BY: James M. Harris
DETAILED BY: Scott R. Cooper
APPROVED BY: - - -

May 28, 1991 | SHEET 7 OF 7

Coffman Associates
Airport Consultants

| LAND USE | Yearly Day-Night Average Sound Level (Ldn) in Decibels | | | | | |
|---|---|---|---|---|---|---|
| **RESIDENTIAL** | Below 65 | 65-70 | 70-75 | 75-80 | 80-85 | Over 85 |
| Residential, other than mobile homes and transient lodgings | Y | N[1] | N[1] | N | N | N |
| Mobile home parks | Y | N | N | N | N | N |
| Transient lodgings | Y | N[1] | N[1] | N[1] | N | N |
| **PUBLIC USE** | | | | | | |
| Schools | Y | N[1] | N[1] | N | N | N |
| Hospitals and nursing homes | Y | 25 | 30 | N | N | N |
| Churches, auditoriums, and concert halls | Y | 25 | 30 | N | N | N |
| Governmental services | Y | Y | 25 | 30 | N | N |
| Transportation | Y | Y | Y[2] | Y[3] | Y[4] | Y[4] |
| Parking | Y | Y | Y[2] | Y[3] | Y[4] | N |
| **COMMERCIAL USE** | | | | | | |
| Offices, business and professional | Y | Y | 25 | 30 | N | N |
| Wholesale and retail-building materials, hardware and farm equipment | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Retail trade-general | Y | Y | 25 | 30 | N | N |
| Utilities | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Communication | Y | Y | 25 | 30 | N | N |
| **MANUFACTURING AND PRODUCTION** | | | | | | |
| Manufacturing, general | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Photographic and optical | Y | Y | 25 | 30 | N | N |
| Agriculture (except livestock) and forestry | Y | Y[6] | Y[7] | Y[8] | Y[8] | Y[8] |
| Livestock farming and breeding | Y | Y[6] | Y[7] | N | N | N |
| Mining and fishing, resource production and extraction | Y | Y | Y | Y | Y | Y |
| **RECREATIONAL** | | | | | | |
| Outdoor sports arenas and spectator sports | Y | Y[5] | Y[5] | N | N | N |
| Outdoor music shells, amphitheaters | Y | N | N | N | N | N |
| Nature exhibits and zoos | Y | Y | N | N | N | N |
| Amusements, parks, resorts, and camps | Y | Y | Y | N | N | N |
| Golf courses, riding stables, and water recreation | Y | Y | 25 | 30 | N | N |

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land values in achieving noise compatible land uses.

See other side for notes and key to table.

Exhibit 5A
FAA PART 150 GUIDLINES ON
LAND USE COMPATIBILITY

## KEY

| | |
|---|---|
| **Y (Yes)** | Land Use and related structures compatible without restrictions. |
| **N (No)** | Land Use and related structures are not compatible and should be prohibited. |
| **NLR** | Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. |
| **25, 30, 35** | Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure. |

## NOTES

1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

5 Land use compatible provided special sound reinforcement systems are installed.

6 Residential buildings require a NLR of 25.

7 Residential buildings require a NLR of 30.

8 Residential buildings not permitted.

*Source:* ***F.A.R. Part 150,*** *Appendix A, Table 1.*

Exhibit 5A (Cont.)
FAA PART 150 GUIDLINES ON
LAND USE COMPATIBILITY